

# BPA121

## Electronic Weighing Scale



METTLER TOLEDO

# METTLER TOLEDO Service

Congratulations on choosing the quality and precision of METTLER TOLEDO. Proper use of your new equipment according to this User manual and regular calibration and maintenance by our factory-trained service team ensures dependable and accurate operation, protecting your investment. Contact us about a service agreement tailored to your needs and budget. Further information is available at [www.mt.com/service](http://www.mt.com/service).

There are several important ways to ensure you maximize the performance of your investment:

1. **Register your product:** We invite you to register your product at [www.mt.com/productregistration](http://www.mt.com/productregistration) so we can contact you about enhancements, updates and important notifications concerning your product.
2. **Contact METTLER TOLEDO for service:** The value of a measurement is proportional to its accuracy – an out of specification scale can diminish quality, reduce profits and increase liability. Timely service from METTLER TOLEDO will ensure accuracy and optimize uptime and equipment life.
  - **Installation, Configuration, Integration and Training:**  
Our service representatives are factory-trained, weighing equipment experts. We make certain that your weighing equipment is ready for production in a cost effective and timely fashion and that personnel are trained for success.
  - **Initial Calibration Documentation:**  
The installation environment and application requirements are unique for every industrial scale so performance must be tested and certified. Our calibration services and certificates document accuracy to ensure production quality and provide a quality system record of performance.
  - **Periodic Calibration Maintenance:**  
A Calibration Service Agreement provides on-going confidence in your weighing process and documentation of compliance with requirements. We offer a variety of service plans that are scheduled to meet your needs and designed to fit your budget.

# Contents

<b>1.</b>	<b>General Information</b> -----	<b>4</b>
	1.1 Safety Instructions-----	4
	1.2 Power supply connection -----	4
	1.3 Introduction -----	5
	1.4 Commissioning-----	6
<b>2.</b>	<b>Basic operation</b> -----	<b>7</b>
	2.1 Switching on and off-----	7
	2.2 Zeroing-----	7
	2.3 Simple weighing-----	7
	2.4 Weighing with tare -----	8
<b>3.</b>	<b>Settings and Calibration</b> -----	<b>9</b>
	3.1 LED brightness adjustment-----	9
	3.2 Calibration -----	9
<b>4.</b>	<b>Event and error messages</b> -----	<b>11</b>
	4.1 Error code and corrective measures -----	11
<b>5.</b>	<b>Technical data and accessories</b> -----	<b>12</b>
	5.1 Technical data -----	12
<b>6.</b>	<b>Appendix</b> -----	<b>13</b>
	6.1 Geo Values -----	13

# 1 General Information

## 1.1 Safety Instructions

**In order to make your counting scale work in best condition, please read this user instructions carefully before using it!**



- The scale must be powered off and unplugged during maintenance and clean, or it will cause electric shock or damage to counting scale.
- Flush the weighing platform with water is forbidden. Wet cloth wrung can be used to wipe weighing platform or scale pan.
- Chemicals such as solvent can't be touched, in case it corrodes the surface of scale and damages internal devices.
- Do not impact the scale with heavy weight. Make the scale work in best condition.
- Only authorized personnel may open the device.
- Devices with built-in storage battery.
- Ensure that the power socket outlet for the device is earthed and easily accessible, so that it can be de-energized rapidly in emergencies.
- Ensure that the supply voltage at the installation site lies within the range 85% to 110% of the local rated voltage.
- Check the power cable regularly. If it is damaged, disconnect the device immediately from the power supply.

## 1.2 Power supply connection

### CAUTION

#### Risk of electric shock!



- Before connecting the power supply, check whether the voltage value printed on the rating plate corresponds to your local system voltage.
- Do not under any circumstances connect the device if the voltage value on the rating plate deviates from the local system voltage.
- Make sure the weighing platform has reached room temperature before switching on the power supply.

- **Plug the power plug into the power socket.**

**After** it has been connected, the device runs a self-test. The device is ready to operate when

**zero** appears on the display

## 1.3 Introduction

### 1.3.1 Display

Default layout

Weight (g)			
<b>0.0</b>			
→Zero	→g	→kg	→Net

### 1.3.2 Function keys



Key	Name	Function in the operating mode	Function in the setting and calibration
→0← ON/OFF	Power/Zero	<ul style="list-style-type: none"> <li>• Power on/off</li> <li>• Set scale to zero, clear tare</li> </ul>	<ul style="list-style-type: none"> <li>• Used to accept what you have selected, and advance one softswitch at a time</li> </ul>
→T←	Tare	<ul style="list-style-type: none"> <li>• Remove the tare weight of the wrappage or pallet</li> </ul>	<ul style="list-style-type: none"> <li>• Used to select softswitch settings.</li> </ul>

### 1.3.3 Indication of the cursor

**Zero:** the scale is in gross weight zero

**g:** the unit currently selected is gram

**kg:** the unit currently selected is kilogram

**lb:** only available after calibration with lb

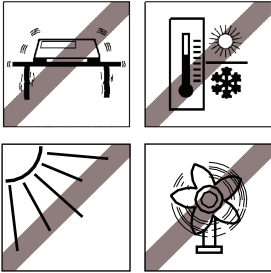
**Net weight:** the weight displayed is the net weight

**Battery indication:** the lead acid battery is configured by default and the charging cursor is lightened as required (on, by default)

- Green indicates that the battery is full
- Red indicates that the battery is low, and need charging immediately
- Flashing red indicates that the battery is low and about to be off;
- Yellow indicates a charging status
- The display will present Display "Lo bAt" when the electric quantity is too low to a certain degree, and the scale will stop working. At this time, the scale must be charged or the battery shall be replaced before continuing to work

## 1.4 Commissioning

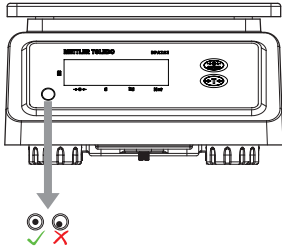
### 1.4.1 Selecting the weighing platform location



The correct location is crucial for the accuracy of the weighing results.

- Select a stable, vibration-free and a horizontal location for the weighing platform
- Observe the following environmental conditions:
  - No direct sunlight
  - No strong drafts
  - No excessive temperature fluctuations

### 1.4.2 Levelling the weighing platform



Only weighing platforms that have been levelled precisely horizontally provide accurate weighing results. Weights and Measures approved weighing platforms have a spirit level to simplify levelling.

#### Leveling the weighing platform as the following procedure shows:

1. Turn the adjustable feet of the weighing platform until the bulb level's air bubble is inside the inner circle(as the picture shows).
2. Tighten the lock nuts of the adjustable feet.

## 2 Basic operation

### 2.1 Switching on and off

#### Power on

- Press [Zero/On/Off]
- Pressing the key [Zero/On/Off] to turn on the scale when the platter is empty. The scale will self-test, then display all segments of all digits, all cursors, SW No., SW version No. and----- one by one, finally enter into the weighing mode.

#### Power off

- Press [Zero/On/Off]
- Before the display shuts down, OFF appears briefly

### 2.2 Zeroing

#### Zero

When the scale is in gross weight mode, and displayed weight is between  $\pm 2\%$  of full capacity, pressing the key [Zero/On/Off] can return it into gross zero.

### 2.3 Simple weighing

Put the item (e.g. 121g) on the platter when scale is gross zero. The display as following.

Weight (g)
121
Zero g kg Net

## 2.4 Weighing with tare

1. Put a container or packing material (e.g. 50g) on the platter, press the key [Tare] to tare the scale. Meanwhile, the cursor net is lit. The display is as following:

Weight (g)			
0			
Zero	g	kg	Net

2. Put the item (e.g. 450g) in the container or packing material, the net weight 450g will be displayed as following.

Weight (g)			
450			
Zero	g	kg	Net

3. Remove all from the platter, the negative tare value will be displayed as right.

Weight (g)			
-50			
Zero	g	kg	Net

4. Repeat first step can tare the scale again.
5. Press [Tare] to clear tare and return the scale to the gross weight mode.



## 3 Settings and Calibration

Enter setting status through two ways: user menu and service menu.

**User menu:** Press on [Tare] in normal working status until F1 is displayed. At this time, the scale enters operating parameter settings.

**Service menu:** Start up in a non-authentication status and unscrew the lead seal screw in the measuring switch position where you will see a metal hole. Short circuit the measuring switch in the main board in the hole with a metal object, the interface will displays S1 and the scale will enter automatically on the system parameter setting. Entering the setting status in this way may calibrate the scale.

### 3.1 LED brightness adjustment

1. Press on [Tare] until [F1 0] appears to enter the parameter setting status.
2. Press [Zero/On/Off] once and [F2 3] will appears.
3. Press [Tare] to select: 0 indicates highest that the scale is on his maximum brightness; The other options available are 1, 2, 3, 4 and 5 where the higher the number, the lower is the brightness.
4. Press [Zero/On/Off] to select the required brightness and then gradually press [Tare] to enter the exit option [E 0]. Then press [Tare], select 1 and press [Zero/On/Off] to confirm. The scale will save the modifications made on the settings and return to the normal weighing status.

### 3.2 Calibration

#### Calibration and zero correction

1. Remove the lead seal screw and short circuit the measuring switch in the main board in the hole with a metal object (screwdriver). Enter the service menu.
2. Press [Zero/On/Off] and switch the parameter option until S3 appears.



Then press [Tare] to switch the parameter option, i.e. calibration mode (1, 2, 3). Then directly press [Zero/On/Off] to enter the next step. The optional modes are:

1: Two-point calibration ( weights: Zero, Two-thirds of the range);

<b>S3</b>	<b>1</b>
-----------	----------

2: Three-point calibration (weights: Zero, half range, full range);

<b>S3</b>	<b>2</b>
-----------	----------

3: Zero calibration ( Zero, without the weight);

<b>S3</b>	<b>3</b>
-----------	----------

Press [Reset/On-Off] to determine the calibration unit, put the correct weights or nothing on the scale pan and then press [Reset/On-Off] to calibrate. The scale starts countdown (from 5 to 0), and then automatically enter next step after calibration.

3. After the end of above calibration mode, press [Reset/On-Off] to switch the parameter option until entering the exit option.

Press [Tare] to select between "0" and "1". 0 means to discard any modification and calibration. 1 means to save any modification and calibration made. In calibration, confirm that the exit option is set to 1. Save to exit.

<b>E</b>	<b>1</b>
----------	----------

## 4 Event and error messages

### 4.1 Error code and corrective measures

Prompt code	Description	Solutions
<i>E00 LJ</i>	Calibration error	<ol style="list-style-type: none"> <li>1. Re-calibrate after any key and confirm that correct weights are used in the calibration process.</li> <li>2. Restart and re-calibrate after the error still appears.</li> <li>3. Check the weighing platform wires or replace the sensor if the error cannot be always eliminated</li> </ol>
<i>E18</i>	EEPROM check error	<ol style="list-style-type: none"> <li>1. Press any key to restart.</li> <li>2. Replace the main board if the error still appears after restarting</li> </ol>
<i>E19</i>	EEPROM hardware error	Turn off the instrument and close the main board
<i>nnnnnn</i>	Overload, The weight is greater than the full range 9d	Reduce the weight on the weighing platform until the prompt does no longer appear.
<i>uuuuuu</i>	Underload The weight on the weighing platform is less than 20d	<ol style="list-style-type: none"> <li>1. Check the scale placement status and horizontally place the scale.</li> <li>2. Press Reset to reset</li> <li>3. Restart the instrument if it is unable to reset</li> </ol>
<i>-----</i>	In power on reset	<ol style="list-style-type: none"> <li>1. Press Reset to check whether the scale can returns to zero position.</li> <li>2. If the scale still shows "-----", turn it off and then turn on again in case of empty pan. Check whether the fault disappears.</li> <li>3. Check whether the sensor is reliably connected with the main PCB board.</li> <li>4. Re-calibrate the scale and check whether the fault disappears.</li> <li>5. Replace and re-calibrate the main board and check whether the fault disappears.</li> </ol> Replace and re-calibrate the sensor if the fault still exists.
	Overload under Sri Lanka authentication status	Reduce the weight on the weighing platform until the prompt does no longer appear.
<i>LD bAt</i>	Low battery	Replace the battery or connect the power line to charge.
<i>OFF</i>	Manual shutdown	OFF prompt.
	Auto shutdown	Check the auto OFF setting. This function, if not required, may be disabled in the user menu.
	Immediately appear after startup	The battery discharge time is too long. Charge immediately.

## 5 Technical data and accessories

### 5.1 Technical data

Model	Platform Size	Scale Capacity				
BPA121	182 x 226 [mm]	1.5kg	3kg	7.5kg	15kg	30kg
<b>Readability</b>						
2 x 1500e Multi-range	[kg/g]	0.75kg / 0.5g 1.5kg / 1g	1.5kg / 1g 3kg / 2g	3kg / 2g 7.5 kg / 5g	7.5kg / 5g 16 kg / 10g	15kg / 10g 30 kg / 20g
3,000d	g	0.5g	1g	2g	5g	10g
7,500d	g	0.2g	0.5g	1g	2g	5g
15,000d	g	0.1g	0.2g	0.5g	1g	2g
30,000d	g	0.05g	0.1g	0.2g	0.5g	1g
60,000d	g	0.02g	0.05g	0.1g	0.2g	0.5g
<b>Scale pan size</b>	182x226mm					
<b>Power supply</b>	DC-AC 220V/50Hz or rechargeable maintenance-free rechargeable lead acid battery (6V/5Ah) are standard accessories and may be used while charging					
<b>Display</b>	6-bit 7-section red LED display; Six-gear brightness adjustable; single-display and dual-display					
<b>Working temperature</b>	-10°C~+40°C					
<b>Environment humidity</b>	≤95%					
<b>Tare range</b>	Full weighing: when tare exists, the weighing range of the net weight shall be reduced accordingly					
<b>Options</b>	Stainless steel scale pan					
	Charger, charging six 6V/5Ah lead acid batteries simultaneously					
	6V/5Ah maintenance-free rechargeable lead acid battery					
<b>Keyboard</b>	Mechanical keyboard, 2 keys					

## 6 Appendix

### 6.1 Geo Values

For weighing instruments verified at the manufacturer, the Geo Code value indicates the country or geographical zone for which the instrument is verified. The Geo Code value set in the instrument (e.g. "Geo 12") appears briefly after switching the scale on.

The table "Geo Code values 3000e" shows the Geo Code values for latitude areas.

North latitude/ South latitude Unit (° / ')	Altitude, meter										
	0	325	650	975	1300	1625	1950	2275	2600	2915	3250
	325	650	975	1300	1625	1950	2275	2600	2925	3250	3575
	Altitude, feet										
	0	1060	2130	3200	4260	5330	6400	7460	8530	9600	10660
	1060	2130	3200	4260	5330	6400	7460	8530	9600	10660	11730
0° 0' – 5° 46'	5	4	4	3	3	2	2	1	1	0	0
5° 46' – 9° 52'	5	5	4	4	3	3	2	2	1	1	0
9° 52' – 12° 44'	6	5	5	4	4	3	3	2	2	1	1
12° 44' – 15° 6'	6	6	5	5	4	4	3	3	2	2	1
15° 6' – 17° 10'	7	6	6	5	5	4	4	3	3	2	2
17° 10' – 19° 2'	7	7	6	6	5	5	4	4	3	3	2
19° 2' – 20° 45'	8	7	7	6	6	5	5	4	4	3	3
20° 45' – 22° 22'	8	8	7	7	6	6	5	5	4	4	3
22° 22' – 23° 54'	9	8	8	7	7	6	6	5	5	4	4
23° 54' – 25° 21'	9	9	8	8	7	7	6	6	5	5	4
25° 21' – 26° 45'	10	9	9	8	8	7	7	6	6	5	5
26° 45' – 28° 6'	10	10	9	9	8	8	7	7	6	6	5
28° 6' – 29° 25'	11	10	10	9	9	8	8	7	7	6	6
29° 25' – 30° 41'	11	11	10	10	9	9	8	8	7	7	6
30° 41' – 31° 56'	12	11	11	10	10	9	9	8	8	7	7
31° 56' – 33° 9'	12	12	11	11	10	10	9	9	8	8	7
33° 9' – 34° 21'	13	12	12	11	11	10	10	9	9	8	8
34° 21' – 35° 31'	13	13	12	12	11	11	10	10	9	9	8
35° 31' – 36° 41'	14	13	13	12	12	11	11	10	10	9	9
36° 41' – 37° 50'	14	14	13	13	12	12	11	11	10	10	9
37° 50' – 38° 58'	15	14	14	13	13	12	12	11	11	10	10
38° 58' – 40° 5'	15	15	14	14	13	13	12	12	11	11	10
40° 5' – 41° 12'	16	15	15	14	14	13	13	12	12	11	11
41° 12' – 42° 19'	16	16	15	15	14	14	13	13	12	12	11

North latitude/ South latitude Unit (° / ')	Altitude, meter										
	0	325	650	975	1300	1625	1950	2275	2600	2915	3250
	325	650	975	1300	1625	1950	2275	2600	2925	3250	3575
	Altitude, feet										
0	1060	2130	3200	4260	5330	6400	7460	8530	9600	10660	
1060	2130	3200	4260	5330	6400	7460	8530	9600	10660	11730	
41° 19' – 43° 26'	17	16	16	15	15	14	14	13	13	12	12
43° 26' – 44° 32'	17	17	16	16	15	15	14	14	13	13	12
44° 32' – 45° 38'	18	17	17	16	16	15	15	14	14	13	13
45° 38' – 46° 45'	18	18	17	17	16	16	15	15	14	14	13
46° 45' – 47° 51'	19	18	18	17	17	16	16	15	15	14	14
47° 51' – 48° 58'	19	19	18	18	17	17	16	16	15	15	14
48° 58' – 50° 6'	20	19	19	18	18	17	17	16	16	15	15
50° 6' – 51° 13'	20	20	19	19	18	18	17	17	16	16	15
51° 13' – 52° 22'	21	20	20	19	19	18	18	17	17	16	16
52° 22' – 53° 31'	21	21	20	20	19	19	18	18	17	17	16
53° 31' – 54° 41'	22	21	21	20	20	19	19	18	18	17	17
54° 41' – 55° 52'	22	22	21	21	20	20	19	19	18	18	17
55° 52' – 57° 4'	23	22	22	21	21	20	20	19	19	18	18
57° 7' – 58° 17'	23	23	22	22	21	21	20	20	19	19	18
58° 17' – 59° 32'	24	23	23	22	22	21	21	20	20	19	19
59° 32' – 60° 49'	24	24	23	23	22	22	21	21	20	20	19
60° 49' – 62° 9'	25	24	24	23	23	22	22	21	21	20	20
62° 9' – 63° 30'	25	25	24	24	23	23	22	22	21	21	20
63° 30' – 64° 55'	26	25	25	24	24	23	23	22	22	21	21
64° 55' – 66° 24'	26	26	25	25	24	24	23	23	22	22	21
66° 24' – 67° 57'	27	26	26	25	25	24	24	23	23	22	22
67° 57' – 69° 35'	27	27	26	26	25	25	24	24	23	23	22
69° 35' – 71° 21'	28	27	27	26	26	25	25	24	24	23	23
71° 21' – 73° 16'	28	28	27	27	26	26	25	25	24	24	23
73° 16' – 75° 24'	29	28	28	27	27	26	26	25	25	24	24
75° 24' – 77° 52'	29	29	28	28	27	27	26	26	25	25	24
77° 52' – 80° 56'	30	29	29	28	28	27	27	26	26	25	25
80° 56' – 85° 45'	30	30	29	29	28	28	27	27	26	26	25
85° 45' – 90° 0'	31	30	30	29	29	28	28	27	27	26	26



**Mettler-Toledo (Changzhou)**

111 West Taihu Road Changzhou

Jiangsu 213125 China

Tel. +86-519-8664-2040

Fax +86-519-8664-1991

Subject to technical changes.

© 2017 Mettler-Toledo (Changzhou)

30401368A

Printed in P. R. China 2017/06

[www.mt.com](http://www.mt.com)

For more information



30401368